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**METHOD AND APPARATUS FOR THE INVESTIGATION  
OF A FUEL CELL SYSTEM**

**ABSTRACT OF THE DISCLOSURE**

A method and an apparatus for the investigation of a fuel cell system comprising at least one fuel cell having an anode side to which a fuel is supplied in operation and a cathode side which is separated from the anode side by a membrane and to which an oxidizing agent is supplied in operation,  
5 in order to carry out at least one of the following tests:

- a) to test whether the fuel cell system is gas-tight at the anode side and/or at the cathode side,
- b) to test whether a leakage is present between the anode  
10 side and the cathode side of the fuel cell system,
- c) to test the starting behaviour of the fuel cell system,
- d) to test the operation of the fuel cell system at low current yield.

The respective test is carried out with a mixture of at least inert gas with at  
15 least one fuel permissible for the operation of the fuel cells, the mixture being supplied to the anode side of the fuel cell system. The mixture is so selected that the proportion of fuel lies below a value at which the mixture is flammable in air.